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INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States and Canada during August, 1884, based upon the reports from the regular and voluntary observers of the Signal Service and co-operating state weather services.

Descriptions of the storms which occurred over the north Atlantic ocean during the month are also given and their approximate paths shown on chart i.

The following may be mentioned as the most noteworthy meteorological features of the month:

1st. The low mean temperatures which prevailed over the greater part of the country, the departures being greatest in the northern plateau and north Pacific coast region, and from Colorado and Wyoming eastward to the Mississippi river.

2d. The frosts which occurred in the upper lake region on the 9th; and in New England and the middle Atlantic states on the 25th, those occurring on the last mentioned date being destructive to vegetation.

3d. The excessive precipitation over the eastern Rocky mountain districts, upper Missouri valley, and extreme northwest; and the unusually small precipitation in the central valleys and Gulf states, where severe drought prevailed.

4th. The moderate weather which prevailed generally over the north Atlantic ocean, the depressions traced on chart i. being of slight energy. It is worthy of note that no tropical hurricane passed near the coasts of the United States during this month.

On the afternoon of the 10th an earthquake shock was felt along the Atlantic coast, and to a considerable distance inland, from Maryland and Delaware northward to Massachusetts and southern Vermont.

With this number of the REVIEW are published two additional charts, numbers iv. and v. The former shows the regions over which frosts occurred on the 9th and 25th, with the isotherms showing the minimum temperatures for the same dates; and the latter shows the departures from the normal atmospheric pressure and temperature.

On pages 197 and 206 will be found tables containing miscellaneous meteorological data from the regular and voluntary observers of the Signal Service.

In the preparation of this REVIEW the following data, received up to September 20th, 1884, have been used, viz.: the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and twenty-two Signal Service stations and eighteen Canadian stations, as telegraphed to this office; one hundred and fifty-eight monthly means from the former, and eighteen monthly means from the latter; two hundred and sixty-five monthly registers from voluntary observers; forty-five monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports, through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the local weather services of Alabama, Georgia, Indiana, Louisiana, Missouri, Nebraska, Ohio, and Tennessee, and of the Central Pacific railway company; trustworthy newspaper extracts; and special reports.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The mean atmospheric pressure for August, 1884, determined from the tri-daily telegraphic observations of the Signal Service, is exhibited by the isobarometric lines on chart ii. As in the previous months (since May) the area of least pressure includes the middle and southern plateau districts, where the monthly barometric means are slightly below 29.85. From the region above named the pressure increases to 30.0 on the north Pacific coast, and to 30.05 over an area extending from the lower Mississippi valley northeastward to Nova Scotia.

Compared with the mean pressure for July, 1884, a slight decrease is shown on the Pacific coast, the deficiency amounting less than .05, except at Portland, Oregon, where it is .07. Eastward of a line extending from Idaho southward to Arizona, except in southern Florida, the mean pressure is greater than for the preceding month. From the Rocky mountains eastward to the ninety-fifth meridian; and in the Gulf states the increase varies from .01 to .10. From the lower Missouri and lower Arkansas valleys northeastward to Nova Scotia, the increase varies from .10 to .25, being greatest over the last-named region, and in New England. It is worthy of remark that the marked increase of pressure over this region as compared with last month corresponds to a decided decrease of pressure in the same region for July as compared with that for June.

The mean pressure for August, 1884, compared with the normal (see chart v.) shows a deficiency ranging from .01 to .06 over the northern districts from the lower lakes westward to Montana. A slight deficiency also occurs in the north Pacific coast region, in the southern plateau, and in southern California; in all other districts the mean pressure is normal or slightly above.

BAROMETRIC RANGES.

The barometric ranges were greatest in the lake region and extreme northwest, where they exceeded .75; they were least in Arizona, southern California, along the west Gulf coast, and in southern Florida, where they were less than .25. The smallest monthly range, .22, occurred at Fort Grant, Arizona; and the greatest, .82, occurred at Alpena, Michigan.

In the several districts the monthly ranges varied as follows:

New England.—From .48 on the summit of Mount Washington, New Hampshire, and .52 at Eastport, Maine, to .63 at Boston, Massachusetts.

Middle Atlantic states.—From .52 at Lynchburg and Norfolk, Virginia, to .68 at Albany, New York.